



DOCKET NO.: ISIS-5297

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Yogesh S. Sanghvi, et al.

Application No.: 10/700,077

Filing Date: November 3, 2003

For: **BUILDING BLOCKS FOR THE SOLUTION PHASE SYNTHESIS OF OLIGONUCLEOTIDES**

Confirmation No.: Not Yet Assigned

Group Art Unit: Not Yet Assigned

Examiner: Not Yet Assigned

DATE OF DEPOSIT:

February 19, 2004

I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL, POSTAGE PREPAID, ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO THE UNITED STATES PATENT AND TRADEMARK OFFICE, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

Elizabeth A. McLoud

TYPED NAME: Elizabeth A. McLoud

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 CFR § 1.56 and in accordance with 37 CFR §§ 1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 CFR § 1.56(b).



In accordance with § 1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of

the above identified application as set forth in § 1.491, before the mailing date of a first Office Action on the merits of the above-identified application, or before the mailing date of a first Office Action after the filing of request for continued examination under § 1.114, no additional fee is required.

- ☐ In accordance with § 1.129(a), this Information Disclosure Statement is being filed in connection with ☐ the first or ☐ second After Final Submission, therefore:

☐ Certification in Accordance with § 1.97(e) is attached; or

☐ The fee of **\$180.00** as set forth in § 1.17(p) is attached.

- ☐ In accordance with § 1.97(c), this Information Disclosure Statement is being filed after the period set forth in § 1.97(b) above but before the mailing date of either a Final Action under § 1.113 or a Notice of Allowance under § 1.311, or before an action that otherwise closes prosecution in the application, therefore:

☐ Certification in Accordance with § 1.97(e) is attached;

or

☐ The fee of **\$180.00** as set forth in § 1.17(p) is attached.

- ☐ In accordance with § 1.97(d), this Information Disclosure Statement is being filed after the mailing date of either a Final Action under § 1.113 or a Notice of Allowance under § 1.311 but before, or simultaneously with, the payment of the Issue Fee, therefore included are: Certification in Accordance with § 1.97(e); and the submission fee of **\$180.00** as set forth in § 1.17(p).

- ☐ Copies of each of the references listed on the attached Form PTO-1449 are enclosed herewith.

- ☒ Copies of references listed on the attached Form PTO-1449 are enclosed herewith
- ☐ Copies of references listed on the attached Form PTO 1449 are not required to be submitted pursuant to the June 30, 2003 recent revisions to 37 CFR § 1.98(a)(2)(i).

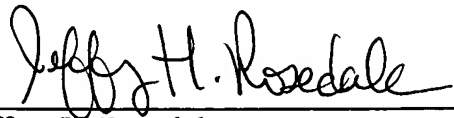
EXCEPT THAT:

- ☒ In view of the voluminous nature of reference number 2, and the likelihood that this reference is available to the Examiner, a copy is not enclosed herewith.
- ☒ In accordance with § 1.98(d), copies of the following references listed on the attached Form PTO-1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C. § 120 have been made in the instant application:
- ☒ Copies of references **1-19** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior Application No. **09/822,903**, filed **March 30, 2001**.

Please charge any deficiency or credit any overpayment to Deposit Account No. 23-3050. This form is submitted in duplicate.

- ☐ The relevance of those listed references which are not in the English language is as follows:
- ☒ There are no listed references which are not in the English language.

Date: February 17, 2004



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Form PTO-1449 Modified List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office		Docket No. ISIS-5297	Application No. 10/700,077
		Applicant Yogesh S. Sanghvi, et al.	
		Filing Date November 3, 2003	Group Not Yet Assigned
		Confirmation No. Not Yet Assigned	
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	1	Copy of PCT Written Opinion dated May 19, 2003 (PCT/US02/08547)	
*	2	Bornscheuer et al., <i>Hydrolases in Organic Synthesis. Regio- and Stereoselective Biotransformations</i> ; Wiley-VCH: Weinheim, 1999	
	3	Carrea et al., "Properties and Synthetic Applications of Enzymes in Organic Solvents", <i>Angew. Chem. Int. Ed.</i> , 2000, 39, 2226-2254	
	4	Ferrero et al., "Chemoenzymatic Transformations in Nucleoside Chemistry", <i>Monatsh. Chem.</i> , 2000, 131, 585-616	
	5	Ferrero et al., "Biocatalytic Selective Modifications of Conventional Nucleosides, Carbocyclic Nucleosides, and C-Nucleosides", <i>Chem Rev.</i> , 2000, 100, 4319-4347	
	6	Gotor et al., "Regioselective Acylation of 2'-Deoxynucleosides Through an Enzymatic Reaction with Oxime Esters", <i>Synthesis</i> , 1992, 626-628	
	7	Iwai et al., "Large Scale Synthesis of Oligoribonucleotides on a Solid Support: Synthesis of a Catalytic RNA Duplex", <i>Tetrahedron</i> , 1990, 46, 6673-6688	
	8	Iwai et al., "5'-Levulinyl and 2'-Tetrahydrofuranyl Protection for the Synthesis of Oligoribonucleotides by the Phosphoramidite Approach", <i>Nucleic Acids Res.</i> , 1988, 16, 9443-9456	
	9	Moris et al., "A Useful and Versatile Procedure for the Acylation of Nucleosides Through an Enzymatic Reaction", <i>J. Org. Chem.</i> , 1993, 58, 653-660	
	10	Reese et al., "The H-phosphonate Approach to the Solution Phase Synthesis of Linear and Cyclic Oligoribonucleotides" <i>Nucleic Acids Res.</i> , 1999, 27(4), 963-971	
EXAMINER		DATE CONSIDERED	

* A copy of this reference will not be forwarded to the U.S. Patent and Trademark Office since it is believed to be too voluminous and easily obtainable by the Examiner.

Form PTO-1449 Modified List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office		Docket No. ISIS-5297	Application No. 10/700,077
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	11	Reese, C. B. et al., "The <i>H</i> -phosphonate Approach to the Synthesis of Oligonucleotides and Their Phosphorothioate Analogues in Solution," Perkin, <i>J. Chem. Soc. Perkin Trans.</i> , 1999 , 1, 1477-1486	
	12	Uemura, et al., <i>Tetrahedron Letts.</i> , 1989 , 30(29), 3819-3820	
	13	Copy of the PCT Written Opinion dated May 19, 2003 (PCT/US02/08547)	
EXAMINER		DATE CONSIDERED	

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U. S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass
	14	4,474,947	10/02/84	Hudson, et al.	536	27
	15	5,538,891	07/23/96	Schneider, et al.	435	280
	16	5,594,117	01/14/97	Udrea, et al.		
	17	6,222,030 B1	04/24/01	Dellinger, et al.	536	25.3
	18	6,677,120 B2	01/13/04	Sanghvi, et al.	435	6

FOREIGN PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Country	Translation	
					YES	NO
	19	WO 00/66605 A2	11/09/00	PCT		

EXAMINER	DATE CONSIDERED
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